

## FOCUSING LENS FOR ELECTRON EMITTER

## ABSTRACT

5           An electron lens is used for focusing electrons from a cathode to an anode.  
The lens includes a first conductive layer with a first opening at a first distance from  
the cathode. The first conductive layer is held at a first voltage. The lens also  
includes a second conductive layer with a second opening at a second distance from  
the first conductive layer and a third distance from the anode. The second conductive  
10   layer is held at a second voltage substantially equal to the voltage of the anode. The  
first and second openings are chosen based on the first voltage, the second voltage, the  
first distance, the second distance and the third distance. The opening focuses the  
electrons emitted from the cathode onto the anode to a spot size preferably less than  
40 nanometers. The force created between the cathode and anode is minimized by the  
15   structure of the lens.